

REMARKS

In response to the restriction requirement, Applicants hereby elect Group I (claims 1-4, 8, and 11-16) for continued prosecution.

Claims 1, 2, 3, 4, 8, and 11-18 are pending in this application. Claims 5, 6, 7, 9, and 10 have been cancelled, and claims 17-18 are new. Of the pending claims, claims 1 and 17 are independent claims.

Claim Objections

The Examiner has objected to informalities in claims 12 and 13. Claims 12 and 13 have been amended as requested by the Examiner.

The § 112 Rejection Has Been Obviated

Claims 1-4, 8, and 11-16 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite because the Examiner states that the term "irregularly sintered" is grammatically ambiguous. The specification at the last paragraph beginning on page 1 to page 2, line 2, describes the plastic granulate particles as follows:

the plastic in the form of a coarse granulate is irregularly filled into a sintering mold and heated therein to a temperature which is so high that the plastic granulate begins to melt on the surface, but does not melt through completely. Thereby, the plastic granulate is sintered at the contacting surfaces and, following cooling, a stable sinter bond is obtained...

The specification teaches that "irregularly sintered" means that the sintered plastic granulate particles are not regularly arranged, but are randomly attached to each other by sintering at the contacting surfaces. In view of the rejection and the specification, applicant has amended to claim 1 to reflect that prior to sintering the plastic granulate particles were irregularly distributed relative to each other.

The Obviousness Rejection And A Quick View Of The Applied References.

The present application is directed to a plastic molded body for use as a pre-filter material. To make these pre-filters, relatively large plastic particles of a specified density are sintered. The result is a "pre-filter" which is conventionally used to filter coarse-grained particles from a solution prior to use of finer filters. All of the art rejections are based upon obviousness and section 103 of the Patent Code. As will be discussed in more detail below, however, the combination of references fail to suggest large granulate plastic particles (having a bulk density of 150 to 250 g/l and a 2 mm to 10 mm size) irregularly distributed and sintered. The claimed plastic molded body is made by irregularly filling plastic granulate

into a sintering mold and heating the granulate so that the granulate melts at the surface, thus sintering the plastic granulate at the contacting surfaces.

The Pall (aka David) reference is the Examiner's primary reference which describes a filter which uses plastic particles which the Examiner acknowledges are not irregularly distributed prior to sintering and which are nearly four times smaller than 2 mm (the smallest end of the claimed range). Further, Pall (David) describes using a low density PE which the Examiner acknowledges would not have the bulk density required by the claims.

The applied Anderson reference does not cure the deficiencies of Pall. Anderson does not describe the bulk density of the claims, nor does Anderson suggest the larger particles of the claims. The largest particles described by Anderson (50-250 mesh) are nearly ten times smaller than the particles described in the claims. Even after one 'adds up' Pall and Anderson, the particle size and bulk density are lacking. Moreover there is no reason to believe the references combine! There would be no motivation to take the Pall reference with small particles which may be regularly distributed and combine it with Anderson with purportedly irregularly distributed small particles to get a large pored prefilter.

Sternberg does not cure the deficiencies of Pall and/or Anderson. Sternberg describes a *molecular filter* material surrounded by a membrane where the filter has pores of uniform size. Sternberg does not suggest plastic particles of the range of the claims. Applicant submits it is unlikely one would look to the world of molecular filters to design and make a prefilter to be used for coarse grained particles.

The Pending Claims Are Not Obvious Over U.S. Patent No. 3,048, to Pall et al. In View of U.S. Patent No. 5,548,960 to Anderson et al. and U.S. Patent No. 4,184,963 to Sternberg.

Pall et al. teach a porous article prepared by sintering a layer of low density polyethylene particles under moderate pressure. The porous article is used to prepare bottle caps or filters that are flat discs of high tensile strength. Pall et al. does not teach a pre-filter material. At Column 4, lines 5-21, Pall et al. describes sintering all of the particles in a layer or, alternatively, sintering only the exterior portions of a layer to form a skin of sintered polyethylene enclosing non-sintered polyethylene particles. Nowhere does Pall et al. teach or suggest a plastic molded body comprising irregularly sintered plastic granulate particles as claimed.

As the Examiner acknowledges, Pall et al. is silent to the teaching of irregularly sintered particles and is silent to the bulk density of the plastic molded body. While Pall et al. teach that the particle size is not critical, Pall et al. also teach that, for optimum results, the particles should pass a 30 to 100 mesh screen, which is equivalent to a range of about 149 to about 595 microns. Example 8 of Pall et al. is directed to filters which are prepared with

polyethylene passing through a 100 mesh sieve, which is equivalent to about 150 microns. The largest particles taught by Pall et al. are nearly four times smaller than the smallest particles of the claimed range of 2mm–10 mm.

Anderson et al. does not address the above-described deficiencies in the Pall et al. reference. Anderson et al. describes an extruder for converting pressurized liquid CO₂ into CO₂ snow particles and CO₂ gas. The extruder includes a cylindrical cartridge comprising sintered plastic. Anderson et al. is not directed to a pre-filter. Anderson et al. teach that the sintered plastic is fabricated from a mixture of various types of polymers, such as a combination of large size particles and fine particles. While Anderson et al. teach that tortuous paths between the particles in the cartridge prevent solid CO₂ snow particles from passing through the cartridge while allowing CO₂ gas to pass through the cartridge, Anderson et al. is silent to the bulk density of the sintered plastic. Anderson et al. further teaches particles sizes of 50–250 screen mesh. The largest particles taught by Anderson et al. are nearly 10-fold smaller than the smallest particles of the claimed range of 2mm–10mm. Anderson et al. does not combine with Pal et al. to suggest the claimed invention.

Sternberg does not add to the other references to render the claims obvious. Sternberg teaches a laboratory scale, immersible filter unit formed of sintered polymer that is encapsulated by a highly anisotropic membrane. Sternberg is not directed to a pre-filter nor could the filter of Sternberg be used as a pre-filter. At Col. 1, lines 63–66, Sternberg teaches that the sintered polymer has “pores of quite uniform size.” (Emphasis added.) Sternberg also does not teach or suggest the claimed particle size.

The cited references do not solve the problems solved by Applicant. Moreover, none of the references teach or suggest a molded plastic body for use as a pre-filter which would filter course particles. Without reference to Applicant's specification, there would be no reason to seek irregularly sintered plastic particles of 2mm to 10mm to form a molded material and apply that teaching to making a pre-filter. Therefore, one of ordinary skill in the art would not be motivated to vary the filter material of Pall et al. to obtain a molded plastic body as defined in claim 1.

Claims 4, 13, and 16 Are Not Obvious Over U.S. Patent No. 3,048, to Pall et al. In View of U.S. Patent No. 5,548,960 to Anderson et al. and U.S. Patent No. 4,184,963 to Sternberg And Further In View of Derwent Abstract of DD137026A.

The addition of DD137026A in rejecting claims 4, 13, and 16 fails to cure the deficiencies in the rejection of claim 1 based upon Pall et al. in view of Anderson et al. and Sternberg. Accordingly, claim 1 is again seen to avoid the prior art and to present patentable subject matter. Claims 4, 13, and 16 are ultimately dependent upon claim 1 and, thus, should be viewed as allowable as well.

Moreover, DD137026A teaches a cartridge for desilvering photographic baths. The cartridges are described as containing "open pore, highly active (partly) sintered iron particles." DD137026A does not teach or suggest a pre-filter nor irregularly sintered plastic granulate particles. One of ordinary skill in the art would not seek guidance from a reference directed to a metal cartridge for desilvering photographic baths when seeking to provide a pre-filter comprising irregularly sintered plastic granulate particles.

Applicant respectfully submits that the current claims patentably define the invention over the references and requests that a timely Notice of Allowance be issued in this case. The Commissioner is hereby authorized to charge any additional fees which may be required in the Application to Deposit Account No. 061135.

Respectfully submitted,

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Date: June 19, 2007

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